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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/787,001 | 02/25/2004 | Florian Tauser | TAUSER ET AL. - 2 | 3928 |
| 25889 | 7590 | 05/03/2006 | EXAMINER | |
| WILLIAM COLLARD COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576 | | | DIACOU, ARI M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3663 | |

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/787,001 | | TAUSER ET AL. | |
| | Examiner | | Art Unit | |
| | Ari M. Diacou | | 3663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Regarding argument that the applicant has overcome the 112 rejection of all claims (by removing "solitonic effects") is convincing, the rejection has been withdrawn.
2. The applicant has also taken appropriate action in overcoming the objection to the specification (by adding "photonic crystal" to the specification). The objection to the specification is withdrawn.
3. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection, which has been necessitated by amendment.

Election/Restrictions

4. Newly submitted claims 11-12 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: they are directed to a method of use which is patentably distinct from the invention of claims 1-9

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 10-11 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

5. Restriction to one of the following inventions is required under 35 U.S.C. 121:

Art Unit: 3663

I. Claims 1-9, drawn to an optical amplifier with a specific resonator cavity, classified in class 359, subclass 346.

II. Claims 10-11, drawn to a method of tuning a laser with a particular beam control device, classified in class 372, subclass 20.

6. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the method may be used with a laser that has a different tuning mechanism—for instance a rotating grating, or a translating corner reflector, instead of a translating prism.

7. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3663

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1 is rejected under 35 U.S.C. 103(a) as being obvious over Knight (previously cited NPL) in view of Galvanauskas et al. (USP No. 5499134) and Tayebati et al. (USPGPub 2005/0129072). Tayebati discloses a laser source, and a tunable compressor preceding a fiber, but fails to disclose the laser producing a chirped beam, or a microstructured fiber to further adjust the beam. Knight teaches that photonic crystals may be used to replace normal optical fiber in any situation where they are better than optical fiber [p847, col 2, lines 3-5], such as use in high power applications

[p849, col 2, 5th line from bottom]. Finally, Galvanauskas teaches a femtosecond laser producing a chirped beam. It would have been obvious to combine the femtosecond seeder of Galvanauskas and Tayebati for the advantage of making a higher power beam. It would have then been obvious to use a photonic crystal fiber because the higher power might burn out a fiber that did not have a hollow core. It further would have been obvious to chirp the beam, because Galvanauskas teaches [Col. 4: lines 10-14] that an amplifying fiber would impart deleterious non-linear effects.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas, Knight and Tayebati as applied to claim 1 above. Galvanauskas, Knight and Tayebati disclose the invention with all the limitations of claim 1, but fails to disclose a system with seed pulses of energy greater than 1 nJ. He does however teach that amplifiers could be modified with lasers with pulses in excess of 1 μ m [Col. 1, lines 24-39]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to use higher seed pulse energies, for the advantage of greater output power.

13. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas, Knight and Tayebati as applied to claim 1 above in view of Broeng et al. (USP No. 2002/0131737). Galvanauskas, Knight and Tayebati discloses the invention with all the limitations of claim 1, but fails to disclose a polarization maintaining fiber, use of a microstructured photonic fiber, or the size of the fiber. Broeng teaches a

Art Unit: 3663

polarization maintaining microstructured photonic fiber [Fig. 1] with a diameter of less than 5 micrometers [¶ 0028-0046]. Knight teaches that photonic crystals may be used to replace normal optical fiber in any situation where they are better than optical fiber [p847, col 2, lines 3-5], such as use in high power applications [p849, col 2, 5th line from bottom] Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to use a microstructured fiber from the disclosure of Broeng to route the high-power pulses resulting from the amplifier of Galvanauskas, for the advantage of not melting.

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas, Knight and Tayebati as applied to claim 1 above. Further, because of the exponential dependence of attenuation of a signal on distance the signal has propagated, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the length of the fiber as small as possible, to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas, Knight and Tayebati as applied to claim 1 above. Galvanauskas, Knight and Tayebati disclose the invention with all the limitations of claim 1, but fails to disclose

Art Unit: 3663

a second compressor. Galvanauskas does however teach that while pulse stretchers are not necessary, using compressors alone can achieve amplification of a signal [Col. 1, lines 50-59]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to include a second compressor, for the advantage of increased amplification.

16. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas, Knight and Tayebati as applied to claim 1 above, and further in view of Svilans et al. (USP No. 6915030). Galvanauskas, Knight and Tayebati disclose the invention with all the limitations of claim 1, but fails to disclose the use of an optical measurement system. Svilans teaches the use of an optical spectrum analyzer for use in monitoring networks of channels [Col. 1, lines 12-53]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to include one in the design of an optical amplifier, for the advantage of knowing the output spectrum of the optical amplifier.

Conclusion

17. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

Art Unit: 3663

18. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

19. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

Art Unit: 3663

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 4/29/2006


JACK KEITH
SUPERVISORY PATENT EXAMINER